MISCELLANEOUS NOTES

1. NEONATAL MORTALITY AMONG SOME CAPTIVE MAMMALS AT NANDANKANAN ZOO

The purpose of this communication is to highlight the importance of neonatal mortality data for animals in captivity.

Data on neonatal mortality of 20 species of animals belonging to 5 groups based on postmortem examination and relevant history were obtained from Nandankanan zoo, Orissa, for the period 1967-1983. Most of the species included in this study were of Indian origin except lions which included lions of both Indian and African subspecies. The neonatal deaths were broadly divided into 4 types on the basis of deaths occurring at different periods of neonatal life. They were (1) still-births — born dead, (2) immediate hebdomadal deaths — deaths occurring within 24 hours of birth, (3) hebdomadal deaths — deaths occurring in 2-7 days of birth, and (4) post hebdomadal deaths — deaths occurring in 8-28 days of life.

Out of 722 deaths recorded in 20 species of animals (Table 1) belonging to different age groups. 242 (33.32%) deaths occurred during neonatal period. Among the species studied (Table 1) highest percentage of neonatal deaths ranging from 40.74 to 67.86 per cent occurred in members of felidae. Next in importance was in wild ruminants which ranged from 14.71 to 43.75 per cent. The results in other species were inconclusive as the number of observations were meagre. It was further seen that majority of deaths occurred during hebdomadal period in members of felidae and ruminants.

The common causes of mortality in different groups have been given in the Table 2. It was seen that still-births and debility were common in most of the groups and cannibalism and rejection by mother were frequently seen among wild felids apart from pneumonia and other miscellaneous conditions. It is possible that the high incidence of still-births in this study may be due to inbreeding as has been suggested by Roychoudhury (1980) and Roychoudhury and Sankala (1979). Apart from inbreeding, any disturbance during advanced stage of pregnancy may result in still-births and hebdomadal mortality. Therefore, to minimise the incidence of still-births, it is necessary to avoid inbreeding in captive animals by introducing fresh blood frequently into the existing livestock by exchange programme with other zoos/sanctuaries. Further, any disturbance to the pregnant/nursing mothers should be avoided by keeping them away from visitors.

According to Cooper (1942) and Schaller (1967), lioness in captivity occasionally eat their young ones but in the present studies cannibalism was observed in all 6 species of felids under study but not in other species. Street (?) stated that zoo mothers often refuse to rear their offspring of the first litter though

TABLE 1

NEONATAL DEATHS RECORDED AMONG 20 SPECIES OF CAPTIVE WILD MAMMALS

Sl. No.	Species	Total deaths	Neonatal deaths					Percentage
			Still-birth	Immediate hebdomadal	Hebdo-madal	Post Hebdomadal	Total	
A.	FELIDS							
1.	Tiger	28	6	4	4	5	19	67.86
2.	Lion	22	1	5	3	2	11	50.00
3.	Leopard	61	3	10	9	14	36	59.02
4.	Leopard cat	27	–	–	1	10	11	40.74
5.	Golden cat	14	–	4	3	2	9	64.29
6.	Jungle cat	45	2	–	21	4	27	60.00
	Total	197	12 (10.62%)	23 (20.35%)	41 (36.29%)	37 (32.74%)	113 (57.36%)	
B.	WILD RUMINANTS							
7.	Hog deer	16	6	–	–	1	7	43.75
8.	Mouse deer	15	–	3	–	1	4	26.67
9.	Spotted deer	113	8	5	6	7	26	23.01
10.	Sambar	67	4	6	7	9	26	38.82
11.	Barking deer	80	3	2	3	10	18	22.50
12.	Fourhorned antelope	34	1	1	1	2	5	14.71
13.	Nilgai	17	3	2	–	–	5	29.41
14.	Blackbuck	83	5	2	9	4	20	24.10
15.	Indian Bison	6	–	–	–	2	2	33.33
	Total	431	30 (26.55%)	21 (18.58%)	26 (23.01%)	36 (31.86%)	113 (26.22%)	
C.	BEAR AND OTHER							
16.	Sloth bear	27	1	–	–	3	4	14.82
17.	Common otter	9	2	–	–	1	3	33.33
	Total	36	3 (42.86%)	–	–	4 (57.14%)	7 (19.44%)	
D.	PRIMATES							
18.	Rhesus monkeys	20	1	1	1	–	3	15.00
19.	Slow loris	24	–	–	1	–	1	4.17
	Total	44	1 (25.00%)	1 (25.00%)	2 (50%)	–	4 (9.09%)	
E.	SQUIRREL							
20.	Malayan giant squirrel	14	–	2 (40%)	3 (60%)	–	5	35.71
	Grand total	722	46 (19.01%)	47 (19.42%)	72 (29.75%)	77 (31.82%)	242	(33.52)

TABLE 2
CAUSES OF NEONATAL DEATHS IN 5 GROUPS OF CAPTIVE WILD MAMMALS

Group of Animals	Causes of death																			
	Still-birth	Cannibalism	Traumatic injuries	Rejection by mother	Debility	Hydrocephalus	Pneumonia	Peritonitis	Intussusception	Gastro enteritis	Drowning	Killing by predator	FMD	Pyemia	Tympanites	Heat stroke	Unknown			
Felids	12	43	1	25	16	1	4	1	1	3	—	—	—	—	—	—	6			
Ruminants	30	—	1	4	34	1	17	2	1	2	3	7	1	1	2	2	6			
Bear and Otter	3	—	—	—	1	—	3	—	—	—	—	—	—	—	—	—	—			
Primates	1	—	—	1	1	—	—	—	—	—	—	—	—	—	—	1	—			
Squirrels	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—			

some mothers might rear their subsequent litters. Deaths due to rejection by mother tigresses in this study belonged to this category.

The age specific mortality among captive mammals during neonatal period in Indian zoos is lacking. According to Pant and Dhariyal (1979), mortality of tiger cubs in Delhi zoo was mainly due to either still-births or due to neglect by mother after birth. Out of 193 tiger deaths, 32% occurred during the first year of life. According to Saharia (1979) the mortality of tigers was 39% in 0-1 year age group. In a nationwide survey of causes of mortality among tigers, Rathore and Khera (1979) recorded 42 cub deaths (unspecified age) out of 62 tiger deaths which included still-births, navel ill, malnutrition, debility and infant mortality. Bhattacharya and Chattopadhyaya (1979) while studying mortality among blackbucks and spotted deer at Ballavpur wildlife sanctuary stated that the neonatal deaths accounted to 23-24% of the total 34 deaths. Schaller (1967) reported a fawn mortality of about 50% in spotted deer, sambar and Indian bison at Kanha National Park. This study revealed considerable loss during neonatal period and in ruminants and felids majority of deaths occurred during hebdomadal period.

ACKNOWLEDGEMENTS

We thank the Dean, Faculty of Veterinary Science and Animal Husbandry, Bhubaneswar and Wildlife conservation officer, Orissa, for providing facilities.

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September 15, 1987.

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2. REACTION TOWARDS SICK ANIMALS BY CONSPECIFICS IN THE COMMON GREY LANGUR (*PRESBYTIS ENTELLUS*)

The intriguing sight of the attempted revival of sick and wounded in the common grey langur (*P. entellus*) was noticed on four occasions. Two of the cases involved road accidents while the other two were caused by food poisoning and extreme low temperatures. Attempts at revival were made in only three of the four observed cases, all the three sick individuals being adult females. Two of the three adult females recovered while the third which was fatally wounded died.

The behavioural repertoire involved in the revival of all three adult females was strikingly alike and involved the following sequence:

1) Fellow group members sit around the sick animal;
2) partially lifting up, followed by vigorous shaking of the prostrate sick/wounded individual by a resident conspecific adult female;
3) jumping a few times (2-5) on the ventro-thoracic and abdominal region of the sick/wounded animal by a second adult female;
4) The second female seated herself atop the body of the sick/wounded individual while other group members sniffed at its face.

The fourth incident involved the resident adult male of a unimale bisexual group. Diagnosis established the causal factor of death of the adult male as food poisoning. No attempt, what so ever, was made by fellow group members to reanimate the ailing adult male.

Besides bringing to light the inborn capabilities of langurs to attempt to revive their